

# Laparoscopic Drainage of a Large Pancreatic Pseudocyst

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## ABSTRACT

Laparoscopic cystogastrostomy is an established procedure for the drainage of pancreatic pseudocysts. Cysts are mainly present in the lesser sac (retro-gastric), which is completely amenable to cystogastrostomy. We discuss the problems faced and simple solutions to the problems in managing a huge pancreatic pseudocyst of 22 cm×18 cm in a young boy 18 y of age.

**Key Words:** Laparoscopy, Pancreatic pseudocyst, Internal drainage, Percutaneous aspiration.

## INTRODUCTION

Pancreatic pseudocysts (PP) have been managed laparoscopically since 1994.<sup>1</sup> The most commonly performed procedure is the laparoscopic anterior cystogastrostomy for retro gastric cysts.<sup>2</sup> There are many reports of huge cysts managed laparoscopically; however, in the English literature no one has currently reported a PP of more than 20 cm managed laparoscopically in a young boy 18 y of age. We approached this case with the intent of managing it with a minimally invasive technique, but we faced problems associated with the size of the cyst and the failure of endoscopic drainage. Hence, we discuss the problems faced while managing such a huge cyst laparoscopically and how they were dealt with in our setup.

## CASE REPORT

An 18-y-old boy reported an enlarged mass over the upper abdomen. He gave a history of abdominal trauma for which he was admitted in his local hospital and managed conservatively. On examination, he had a huge mass of about 20 cm×15 cm that was firm in consistency in his upper abdomen and that moved very slightly with respiration. Ultrasound showed a walled off cystic collection of about 20 cm×17 cm. Computed tomography revealed a 22 cm×18 cm pancreatic pseudocyst that pushed the stomach superiorly and the colon inferiorly (**Figure 1**) while compressing the retroperitoneal structures. The underlying pancreas could not be properly delineated; however, the rest of his gut and solid organs were within normal limits.

We planned a laparoscopic internal drainage of the cyst. In the process, we faced 2 major problems:

1. Due to the huge size of the cyst, the patient's venous return was not normal, a situation that could be further aggravated after pneumoperitoneum.
2. The cyst almost completely occupied the upper abdomen and extended below the umbilicus; hence, the site of entry for pneumoperitoneum was uncertain.

An endoscopic transmural drainage was an ideal procedure to preoperatively decompress the cyst. It was tried, but it failed, because the cyst wall was thick and the cyst had completely compressed the stomach, making endo-

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**Figure 1.** Reconstructed computed tomography image showing the huge cyst compressing the nearby structures.

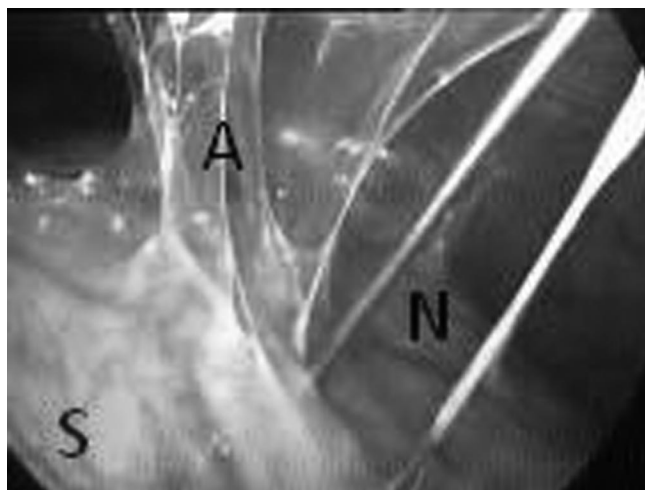
scopic manipulation difficult inside the stomach. Preoperative percutaneous external drainage was the next choice, but it had its own risks of infection, including potential hemorrhage into the cyst or into the peritoneal cavity, a punctured bowel, and other such things.

We decided to perform the same in the operation theater with the patient under anesthesia and already prepared for laparotomy if required. The patient was put in the usual reverse Trendelenburg with a modified lithotomy position.

An area was marked, using ultrasound guidance, along the left mid clavicular line approximately 4 cm below the costal margin. This site was marked as such to avoid the colon and other major vessels while reaching the cyst percutaneously via the stomach. A 24-gauge lumbar puncture needle was introduced into the cyst percutaneously from the marked site, and 1000 mL of pancreatic fluid was very slowly aspirated (**Figure 2**). This decompressed the cyst a bit, and we could enter the peritoneal cavity by an open technique from the umbilicus. There were flimsy adhesions between the gastric wall and the anterior abdominal wall, which were separated by the 30° scope. We could see the needle passing through the stomach wall into the cyst (**Figure 3**), which confirmed its safe passage. Further, under direct vision of the scope, we slowly aspirated another 500 mL of fluid. This collapsed the cyst to more manageable proportions, and we could insert the other ports. The needle was removed under vision. At the site of needle puncture of the stomach an anterior gastrotomy was performed, and we proceeded with an uneventful anterior laparoscopic cystogastrostomy using the routine 4-port technique. The patient had an uneventful postoperative recovery. He is doing well 12 mo after surgery.



**Figure 2.** Intraoperative photograph showing the patient with distended abdomen due to the cyst and aspiration being done using a 24-gauge needle.



**Figure 3.** Needle (N) seen going through the stomach wall (S) into the cyst after adhesions (A) have been separated.

## DISCUSSION

Surgery, a near-perfect procedure, is the mainstay in the management of the pancreatic pseudocyst. At times, surgery, endoscopic drainage, and percutaneous external drainage are complementary to each other rather than being conflicting alternatives.<sup>3</sup> Since its introduction in 1994, laparoscopy has contributed enormously in the management of pseudocysts. Many series have reported excellent outcomes with the laparoscopic procedure.<sup>4</sup> It offers all of the benefits of minimally invasive surgery to the patient while maintaining all of the principles of PP surgery. Laparoscopy achieves adequate internal drain-

age, facilitates concomitant debridement of necrotic tissue within the pseudocysts, and achieves good results with minimal morbidity.<sup>4</sup> Laparoscopic internal drainage can be performed using anterior and posterior approaches.<sup>5</sup> The anterior technique is easy to master, while the posterior laparoscopic approach requires more sophisticated laparoscopic skill.<sup>6</sup> Most laparoscopy case series, however, report cyst sizes below 12 cm.

The most common cause of pancreatic pseudocysts in children is trauma followed by cholelithiasis.<sup>7</sup> Endoscopic management in children is regarded as the gold standard by some<sup>7</sup>; however, it is reported to have a very high recurrence rate.<sup>5</sup> In our case, endoscopic drainage was not possible due to the huge size of the cyst. External drainage alone can have very high recurrence and complication rates. In our case, it was the perfect adjunct to a laparoscopic internal drainage procedure.

Until now in the English literature, no one has addressed the feasibility of preoperative, on-table percutaneous drainage of a cyst with ultrasound localization to facilitate entry into the peritoneal cavity in the treatment of large pancreatic pseudocysts. This procedure has been described in this case.

## CONCLUSION

Laparoscopy has played a significant role in the surgical management of pseudocysts with excellent outcomes.

Huge pancreatic pseudocysts are also amenable to laparoscopic repair with slight preoperative or on-table modification.

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